

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

ROGER P. JACKSON, M.D.,

Plaintiff,

v.

SEASPINE HOLDINGS CORPORATION,

Defendant.

Civil Action No. 20-1784-RGA

MEMORANDUM OPINION

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ANDREWS, U.S. DISTRICT JUDGE:

Before me is the issue of claim construction of multiple terms in U.S. Patents No. 7,377,923 (“the ’923 patent”), 10,588,667 (“the ’667 patent”), and 10,722,273 (“the ’273 patent”). The parties submitted a Joint Claim Construction Brief (D.I. 111), and I heard oral argument on May 10, 2023. I ruled on the construction of six of the nine disputed terms—some of which came from other asserted patents—at oral argument. (Tr. at 113:4-8, 114:14-117:3).¹ This opinion addresses the remaining three terms.

I. BACKGROUND

The ’923 and ’667 patents share a specification. The ’923, ’667, and ’273 patent all concern variable-angle spinal screw assemblies for spinal fixation and stabilization procedures. (’923 patent at 1:13-20; ’273 patent at 1:28-34; D.I. 111 at 3-4).

II. LEGAL STANDARD

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (alteration in original) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). Of these sources, “the specification is always highly relevant to the claim

¹ I cite to the transcript of the oral argument (which is not yet on the docket) as “Tr.”.

construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (internal quotation marks omitted). “While claim terms are understood in light of the specification, a claim construction must not import limitations from the specification into the claims.” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1354 (Fed. Cir. 2012) (citing *Phillips*, 415 F.3d at 1323).

“[T]he words of a claim are generally given their ordinary and customary meaning. . . . [Which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1312–13 (citations and internal quotation marks omitted). “[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted). “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314.

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court’s construction is a determination of law. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). The court may also make factual findings based upon consideration of extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317–19 (quoting *Markman*, 52 F.3d at 980). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence,

however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

III. CONSTRUCTION OF DISPUTED TERMS

The parties agree that claim 1 of each of the three patents is representative for the purposes of claim construction. Those claims read as follows.

1. A variable angle spinal screw assembly adapted to be secured to a vertebrae for providing an adjustable securement of a fixation rod across at least two vertebrae, said assembly comprising:
 - a pedicle screw having a substantially spherical head portion, a threaded shaft portion and a tool engagement surface defined by the head portion for use in driving the screw into a vertebrae;
 - a body member for receiving said head portion of said screw therein and defining an opening in an inner end thereof for the extension of said shaft portion of the screw therethrough, a pair of opposed parallel slots therein for receiving a portion of a fixation rod therebetween, a ***curvilinear interior surface*** disposed about said opening for abutting and mating with said substantially spherical head portion of said screw so as to allow ***variable angular movement*** of said body member with respect to said pedicle screw while maintaining said interior surface of said body member in mating contact with said head portion of said screw;
 - a locking cap releasably securable within said body member such that said cap bears against the portion of a fixation rod disposed between said slots to secure the rod within said assembly; and
 - a keyed interface between said pedicle screw and said body member whereby said pedicle screw can be inserted into a vertebrae and said body member subsequently disposed about said substantially spherical head portion of said screw such that said head portion abuts and mates with said ***curvilinear interior surface*** of said body member to provide said ***variable angular movement*** of said body member with respect to said screw;
- wherein said keyed interface comprises a first threaded surface in said body member about said opening in said inner end thereof and a second threaded surface on said head portion of said screw, said first threaded surface being adapted to threadably engage said second threaded surface such that said screw can be inserted into a vertebrae and said body member threaded onto and over said head portion of said screw to position said ***curvilinear interior surface*** of said body member such that said interior surface can abut and mate with said body portion.

('923 patent at 8:28-9:4 (remaining disputed terms bolded and italicized)).

1. A spinal screw assembly for securing a fixation rod to a bone via a closure, the spinal screw assembly comprising:
 - a screw having a longitudinal axis, a screw head, and an integral anchor portion extending downward from the screw head for fixation to the bone, the screw head having an upper curvilinear surface, a lower curvilinear surface adjacent the anchor portion, and an outer surface between the upper curvilinear surface and the lower curvilinear surface, the outer surface having a first guide and advancement structure formed therein;
 - a body member having a base with a cavity, an upper portion with a channel for receiving the fixation rod, and an axial bore centered around a longitudinal axis, the axial bore communicating with the channel and with a bottom of the base through a lower opening, the cavity having a reduced cross-section adjacent the lower opening to prevent the screw head from exiting the cavity through the lower opening, the lower opening having a second guide and advancement structure formed therein and threadably mateable with the screw head first guide and advancement structure; and
 - a bushing positionable within the body member and engageable with the screw head,wherein the screw head outer surface is in pivotal engagement with a surface on the reduced cross-section when the screw is disposed within the body member axial bore, with the anchor portion extending downward through the lower opening, so as to allow ***variable angular movement*** of the screw relative to the body member prior to a locking of the assembly via the closure.

('667 patent at 8:50-9:13 (remaining disputed terms bolded and italicized)).

1. A bone anchor assembly for securing an elongate rod to a bone, the bone anchor assembly comprising:
 - a shank having a proximal capture portion and an anchor portion extending distally from the proximal capture portion for fixation to the bone;
 - a receiver having a longitudinal axis, an upper portion defining a U-shaped channel with inner sidewall surfaces configured to receive the elongate rod, and a lower portion defining a cavity communicating with the U-shaped channel and a receiver bottom opening, the inner sidewall surfaces including a guide and advancement structure and ***a discontinuous downward-facing shoulder pre-formed therein*** between the guide and advancement structure and the bottom opening; and
 - a pressure insert sized and shaped to be positioned downwardly within the receiver into a first position, the pressure insert having upward-facing contact surfaces and being rotatable into a second position that locates the upward-facing contact surfaces at least partially under the receiver discontinuous downward-facing shoulder to prevent the pressure insert from moving back up within the receiver.

('273 patent at 29:48-30:2 (remaining disputed terms bolded and italicized)).

A. “curvilinear interior surface” (’923 patent, claim 1)

- a. *Plaintiff’s proposed construction*: “curved interior surface”
- b. *Defendant’s proposed construction*: “an outwardly extending rounded surface having a pair of perpendicularly disposed concave surfaces formed therein”
- c. *Court’s construction*: “interior surface contained by or consisting of curved lines”

Plaintiff argues in its brief that “curvilinear interior surface” should be given its plain and ordinary meaning. (D.I. 111 at 13). Plaintiff offers “curved” as the plain meaning of “curvilinear.” (D.I. 115). Plaintiff notes that the abstract of the ’923 patent “interchanges ‘curvilinear inner surface’ for ‘rounded interior surface.’” (D.I. 111 at 14). Regarding Defendant’s proposed construction, Plaintiff objects that “partially rounded” has no basis in the intrinsic record. Plaintiff also argues that requiring the “perpendicularly disposed concave surfaces” alluded to in Defendant’s proposed construction would be “importing limitations from the specification.” (*Id.* (citing *Contintental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 796-99 (Fed. Cir. 2019))).

Defendant indicated at oral argument that the central issue in this dispute is whether the “curvilinear interior surface” only encompasses “the extended range of motion that the patents describe as a present invention or whether it encompasses known polyaxial screws.” (Tr. at 69:16-22). Defendant’s position is that the construction must not include interior surfaces that would overlap prior art spinal screw assemblies. (*Id.* at 74:13-21). Defendant argues in its brief that “curvilinear interior surface” is a coined term and must be limited to the disclosure in the specification. (D.I. 111 at 15). Defendant also argues that claim differentiation requires that “curvilinear” mean something other than “rounded” or “curved,” because dependent claims 15 and 16 of the ’667 patent claim a “rounded” and a “curvilinear” surface, respectively. (*Id.* at 21). Defendant derives its proposed construction from the drawings in the specification. (*Id.* at 15-

16). Defendant noted at oral argument that its construction captures the requirement, gleaned from the drawings, that some portion of the surface is straight. (Tr. at 73:15-74:2).

As I indicated at oral argument, I do not think “curvilinear interior surface” is a coined term. It is simply two modifiers applied to “surface.” (*Id.* at 80:15-24).

At oral argument, I ordered additional briefing for this term on the meaning of the word curvilinear. (Tr. at 86:7-22). In its letter brief, Plaintiff offers several dictionary definitions of curvilinear, all of which mention curved lines. (D.I. 117 at 1). For example, the *Concise Oxford Dictionary of Current English* defines “curvilinear” as “contained by or consisting of curved lines” (D.I. 117 Ex. A), while the *McGraw-Hill Dictionary of Scientific and Technical Terms* defines it as “pertaining to curved lines, as in curvilinear coordinates or curvilinear motion.” (D.I. 117 Ex. C).

Defendant takes the position that curvilinear in isolation means “continuously curved.” (D.I. 116 at 2). Defendant elaborates that “the term ‘curvilinear surface’ can be understood as referring to a surface that is characterized by a smooth and continuous curved surface area.” *Id.* at 5). This seems at odds with Defendant’s previous contentions that the curvilinear interior surface should include a “straight” or “linear” portion. (Tr. at 73:15-74:2).

The inconsistency between Defendant’s proposed construction for “curvilinear interior surface” and its provided definition for “curvilinear” undermine its arguments. Further, Defendant’s proposed construction is fairly impenetrable and, it seems to me, significantly harder for a jury to understand than even the original phrase. I am also not persuaded that claim differentiation in the ’667 patent—which does not mention a “curvilinear interior surface”—should guide the construction of “curvilinear interior surface” in the ’923 patent. The specification and the claims of the ’923 patent do not support placing any limitations on the

shape of the curved surface other than that it be “curvilinear.” Because curvilinear is an obscure word, however, it does seem necessary to specify what “curvilinear” means beyond “curved.”

Based on the additional extrinsic evidence offered by the parties, I construe “curvilinear interior surface” to mean “interior surface contained by or consisting of curved lines.”

B. “variable angular movement” (’923 patent, claim 1; ’667 patent, claim 1)

- a. *Plaintiff’s proposed construction*: “polyaxially movement”
- b. *Defendant’s proposed construction*: “an extended range of motion in a lateral direction in addition to the pivotal range of motion available in all directions”
- c. *Court’s construction*: Plain and ordinary meaning

Plaintiff asserts that “polyaxial[] movement” is the “ordinary and customary meaning in the art” of “variable angular movement.” (D.I. 111 at 23). Plaintiff argues that Defendant’s proposed construction is inconsistent with the plain and ordinary meaning and imports limitations from embodiments. (*Id.* at 24).

Defendant argues that the scope of “variable angular movement” should be limited to descriptions in the specification because of the use of the language “present invention.” (*Id.* at 25-26 (citing *Regents of the Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 936 (Fed. Cir. 2013))). Defendant notes that the Federal Circuit has held, “When a patent . . . describes the features of the ‘present invention’ as a whole, this description limits the scope of the invention.” *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007) (quoting *Honeywell Int’l, Inc. v. ITT Indus.*, 452 F.3d 1312, 1318-19 (Fed. Cir. 2006)). Defendant further argues that the “present invention” language, along with the absence of any language to the contrary, indicates that an “extended range of motion” is these patents’ only improvement over the prior art. (D.I. 111 at 26). Consequently, Defendant argues, as with “curvilinear interior surface,” “variable angular movement” must be construed to exclude the prior art. (*Id.* at 27). At

oral argument, Defendant also noted that to the extent other improvements, such as “ratchet teeth,” are alluded to in the specification, they are not elaborated on or claimed. (Tr. at 90:9-19).

Plaintiff responds that the patent does include other novel, claimed features including an improved locking mechanism. (*Id.* at 96:15-25). Plaintiff points to language in the asserted claims requiring “a locking cap releasably securable within said body member such that said cap bears against the portion of a fixation rod disposed between said slots to secure the rod within said assembly.” (’923 patent at 10:52-55).

Plaintiff and Defendant also seem to disagree on the meaning of “polyaxial.” Plaintiff asserts that polyaxial movement “does not need to be the same degree in every direction.” (Tr. at 92:4-7). Defendant argues, “if . . . it’s constant in every direction, it’s polyaxial” (*Id.* at 89:4-6), whereas if it “additionally provides for . . . plus or minus ten degrees in one or more directions,” it is variable but not polyaxial. (*Id.* at 89:17-20).

Regarding the primary issue of whether I must construe the term to exclude the prior art, I am skeptical that the extended lateral range of motion is the only feature that differentiates the patents from the prior art. Plaintiff was able to point out the novel locking mechanism. Further, although the patent refers to the “present invention” as providing “an extended range of motion as compared to the prior art,” (’923 patent at 2:26-27), it also states that “the present invention . . . eliminates the numerous problems heretofore experienced with threaded fasteners.” (*Id.* at 2:30-32). Although this language is vague, I do not think there is any disclaimer based on the language “present invention.” I find the line of cases beginning with *Honeywell* inapplicable. Further, I see no other basis for importing a limitation that Defendant acknowledges comes from the embodiments in the specification. (D.I. 111 at 29)

The parties provided no briefing and little argument on the meaning of “polyaxial,” since it was part of a construction rather than a term to be construed. Given the parties’ disagreement about its meaning, and given that “polyaxial” seems like a more obscure descriptor than “variable angular,” I construe “variable angular movement” to have its plain and ordinary meaning.

C. “a discontinuous downward-facing shoulder pre-formed therein” (’273 patent, claims 1 and 39)

- a. *Plaintiff’s proposed construction*: “a formation on the inner sidewall having a downward facing contact surface”
- b. *Defendant’s proposed construction*: “a recessed portion formed in the inner sidewall having a downward facing contact surface distinct from the guide and advancement structure”
- c. *Court’s construction*: “a formation on the inner sidewall having a downward facing contact surface”

At oral argument, the parties identified two central issues: whether the shoulder must be “recessed” relative to the inner sidewall and whether the shoulder must be “distinct from the guide and advancement structure.” (Tr. at 103:4-11). As I indicated at oral argument, I do not think it is necessary to include the language “distinct from the guide and advancement structure.” (*Id.* at 111:23-112:10). The fact that the shoulder is distinct is clear from the claim language, which says, “a discontinuous downward-facing shoulder pre-formed therein between the guide and advancement structure and the bottom opening.” (’273 patent at 29:59-61). The shoulder cannot be between the guide and advancement structure and the bottom opening if it is part of the guide and advancement structure. I find that the shoulder is not part of the guide and advancement structure, but I note that there is no minimum distance or separation required between the guide and advancement structure and the shoulder. (*See* Tr. at 112:5-10).

I now turn to the issue of whether the shoulder must be recessed. Plaintiff contends that the only requirement of the discontinuous downward-facing shoulder is that it have a downward

facing surface that can lock onto a screw or insert to prevent upward motion. (D.I. 111 at 31).

Plaintiff argues that, by requiring that the shoulder be recessed, Defendant is attempting to “import . . . specific embodiments into the claims.” (*Id.* at 36). Plaintiff notes that Defendant has not argued for lexicography or disclaimer, and it would therefore be improper to limit the claims to the embodiments in the specification. (*Id.* at 37 (citing *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012))).

Defendant argues that, based on the drawings and the specification, the downward facing shoulder must “extend[] inwardly in relation to the side surface . . . as opposed to protruding outwardly into the u-shaped channel.” (D.I. 111 at 36). At oral argument, Defendant noted, “There’s no disclosure in the patent . . . or in the file history talking about some kind of positive protrusion, or intrusion or formation that also contains the shoulder.” (Tr. at 108:2-5).

I agree with Plaintiff that nothing in the specification or the claims requires that the shoulder be recessed. The parties agree that the embodiments in the specification have recessed shoulders, but this does not mean that only recessed shoulders are claimed. Although Plaintiff’s citation to *Thorner* is not precisely on point, it is nevertheless the case that “a claim construction must not import limitations from the specification into the claims.” *Deere & Co.*, 703 F.3d at 1354. Defendant does not argue that a POSA would understand that a shoulder is always recessed. Defendant’s only argument is that the embodiments in the specification feature recessed shoulders. I find this insufficient.

IV. CONCLUSION

Within five days the parties shall submit a proposed order consistent with this Memorandum Opinion and my rulings at oral argument.